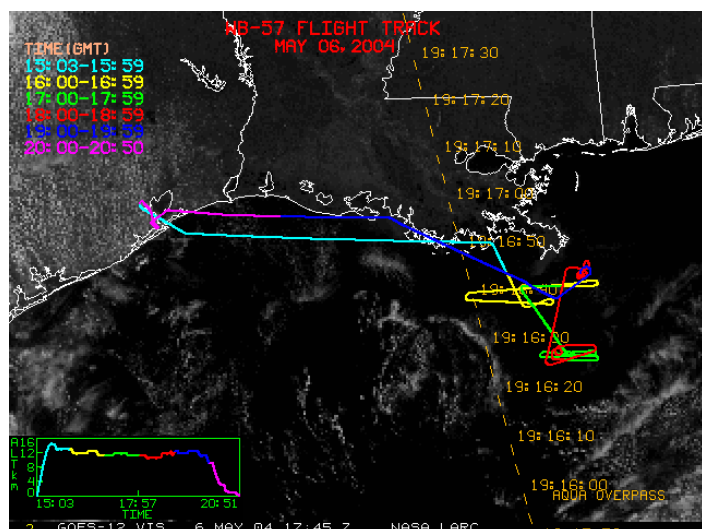
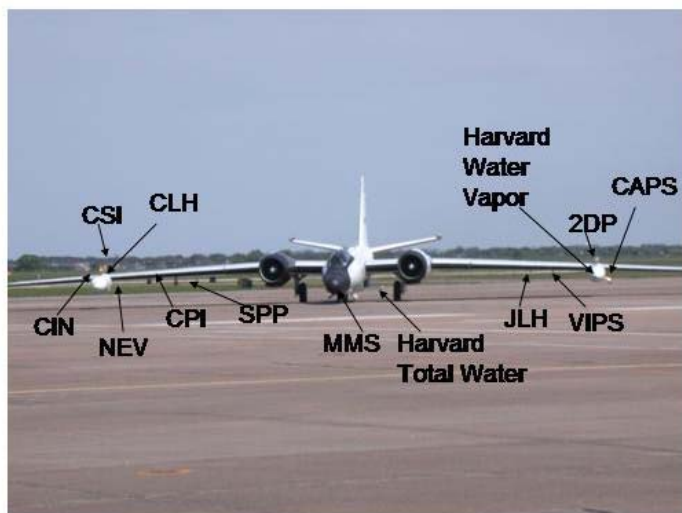


Flight Summary: WB-57F MidCiX – 6 May 2004; Aqua Validation



Top: Instrument locations for MidCiX. Bottom: Flight track (compiled by Pat Minnis' group) for the flight of 6 May.

Purpose of Mission: Sample cirrus over the Gulf of Mexico under the Aqua satellite overpass.

General Information

Flight date – 6 May 2004

Flight description – Flight #9, MidCiX mission

Flight duration – 5.9 hours

Crew – Bill Ehrenstrom and Brian Barnett

Flight Summary

A subtropical low pressure system was drawing cirrus northeastward over the Gulf. The main region of cloudiness was dissipating and moving eastward. Due to airspace restrictions, the WB57 concentrated on the thin, nearly subvisible, cirrus associated with this system.

Flight Log

- We took off and climbed up to FL 490, entering a broken layer of puffy clouds at FL 030 at 15:05 briefly.
- We descended into the block FL 390 – FL 410 at 15:34:20, per Harvard request. ATC soon made us climb up to FL 410 and stay there for traffic.
- 16:02:50, we descended down to FL 370 to get in the cirrus layer. We were in the cloud tops at FL 390, 16:04:15, and it was optically a very thin layer.
- We started a turn to the east to set up for an east/west track. At this point, there was nothing visible going by the aircraft. The cloud was really only visible on edge far away from the aircraft.
- ATC turned us back to the west at 16:10:00, and as we made the turn, we saw our contrail that we were laying down

at FL 370.

- At 16:21, we could see the cloud around us, and it looked like we were closer to the bottom of the layer.
- At 16:26:30, the counts started to taper off as the layer looked like it was climbing slightly above us.
- At 16:28:30, we climbed up to FL 390 and turned back to the east. Initially, there was still some cloud above us at the very western point, however we quickly got back into the tops of the clouds, and there were very light wisps going by the aircraft.
- At 16:45:30, we descended down to FL 350 due to ATC, and then turned back west at 16:50. In the turn looking back west, the cloud had dissipated dramatically.
- At 16:54:50, we were picking up very small, intermittent counts at FL 350 at the very base of the thinning cloud.
- 17:08:19, we turned to the southeast to look for some more promising clouds, and climbed back to FL 370.
- At 17:15:06, we started picking up some sub-visible cirrus, then we were getting more by 17:22.
- At 17:24, the counts were good, so we turned east to again start an east/west track.
- At 17:27:00, we were skimming the tops of the clouds at FL 370, with some wisps going by the aircraft. Very light turbulence was noted.

- At 17:30:00, we turned to the west at FL 370, picking up nothing, as this very thin layer appeared to be slightly below us.
- At 17:36, we were getting counts at the top of the cloud and descended into the block FL 350 – FL 370.
- At 17:40:55, we turned back east at FL 350, flying at the base of the cloud. By 17:47, the area was clearing out rapidly.
- At 17:51, we turned back west, FL 350, not getting much at all initially, then we were at the cloud tops later in the leg.
- At 18:09:10, we descended down to FL 330, did the MMS calibrations, then headed east.
- At 18:12:40, we turned west and called home to get a new location, because everything around us had dissipated.
- At 18:24:30, we headed to the point 29N, 89W. At 18:35:28, we climbed up to FL 370, and started getting counts at FL 365.
- At 19:40, we were in thin, visible cirrus, but quickly ran out of it. Then we were back in it. It was apparent the new area we were working was just as patchy as the previous area.
- At 18:51:20, we climbed up to FL 390, and topped out the cloud at FL 384, in preparation for a spiral.
- At 18:52:30, we started a spiral descent, reaching the tops at FL 380 at 18:53:40.
- We were out of the cloud base at FL 353, 18:56:10.
- We immediately started a spiral up at 18:56:10, from FL 350 and were immediately in the cloud.
- We intercepted our own contrail at 18:57:42.
- We came out of the cloud tops at FL 380, 18:58:40.
- We turned to a 240 deg heading to fly into the wind at FL 390, and then descended down to FL 370 at 19:05:30. There were no counts at either altitude, and nothing was around us.
- At 19:11:40, we turned toward home.
- At 19:25:05 and 19:25:25, we intercepted two contrails that were not ours.
- At 19:38:44, we descended down to FL 350, getting some counts on the way between FL 371 and FL 365.
- At 19:54:08, we descended down to FL 290 per Harvard request.
- At 20:04:10, we started a final descent en-route to RTB.
- At 20:32:39, we established a 13-minute track in the wet, puffy clouds at FL030 until 20:45:20.
- We then landed at EFD, lightly scraping the left wing tip and CAPS instrument at touchdown.

Take off	1502 UTC	Landing	2050 UTC
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Instrument Failures/Notes/Times

- The nav data recorder started counted up from zero initially. It was shut down at 14:58:10 and reset, and worked correctly the whole flight.
- MMS Box: 18:04:17 – 18:07:40, Mach .49
- MMS Pitch: 18:07:40 – 18:08:07, Mach .44
- MMS Yaw: 18:08:08 – 18:08:35, Mach .43
- Landing gear up right after takeoff. Spoilers out at 15:34:20. Spoilers out at 19:58:00. Gear down and spoilers open at 20:04:10. Gear up and spoilers closed at 20:16:20. Gear down and spoilers out at 20:47:50.

Instruments flown: Full Compliment

Nav Data Information

- Nav data is uploaded to the MidCix website.

Compiled by Brian Barnett, Jay Mace